

Governor's Water Augmentation, Innovation and Conservation Council

December 3, 2019



I. Welcome and Introductions



II. Committee Updates

Desalination Committee

Non-AMA Groundwater Committee

Post 2025 AMA Committee

Long Term Water Augmentation Committee



Desalination Committee update

Chairman : Philip Richards



Non-AMA Groundwater Committee update

Co-Chairwomen : Rep. Gail Griffin & Jamie Kelley

*Next meeting:
February 7, 2020
10:00 a.m. – 12:00 p.m.
ADWR, Room 3175*



Post-2025 AMAs Committee update

Co-Chairmen : Warren Tenney & Tim Thomure





Post 2025 AMAs Committee Update

Governor's Water Augmentation Innovation & Conservation Committee
December 3, 2019

Committee Objective & Approach

GOAL

Identify water management challenges facing the AMAs and generate strategic solutions for 2025 and beyond

APPROACH

1. Reflect on the past 40 years of water management in the AMAs. Identify today's problems and challenges.
2. Propose solutions/strategies for addressing the challenges after 2025



Committee Roadmap



Compile

Generate list of
challenges
Categorize & Refine



Analyze

Analysis & deep dive
of priority issues



GWAICC

Present findings to
Council for review and
buy-in

Solutions/Strategies

With mandate from
GWAICC, develop
solutions/strategies for
identified priority issues

2021

Target December 2020

Post-2025 Committee Scope

In Scope

AMAs
Post-2025

Out of Scope

4th Management
Plan
5th Management Plan
Non-AMA Issues
Augmentation

Committee Progress

- Initial Meeting – October 10th
- Next Meeting – Monday, Dec 9th, 2:00 p.m.
- 2020 Meetings
 - February, April, June, August, October, December



Long Term Water Augmentation Committee update

Chairman : Wade Noble

Next Meeting:

January 8, 2020

10:00 a.m. – 12:00 p.m.

ADWR, 4th Floor, Middle Verde Conference Rm.



III. Safe Yield in the AMAs

Natalie Mast, Manager, AMA Management Plans,
ADWR



Safe-Yield in the AMAs



GWAICC Meeting
December 3, 2019

Natalie Mast
Program Manager – Management Plans

Agenda

- I. Components of Safe-Yield
- II. Safe-Yield by AMA
- III. Challenges & Continuing Work



Components of Safe-Yield

Safe-Yield

A.R.S. § 45-561(12):

“A groundwater management goal which attempts to achieve and thereafter maintain a long-term balance between the annual amount of groundwater withdrawn in an active management area and the annual amount of natural and artificial recharge in the active management area.”



Annual Calculation

Inflows

- * Natural
 - * Groundwater Inflow
 - * Streambed Recharge
 - * Mountain-front Recharge
- * Artificial
 - * Incidental Recharge
 - * Agricultural
 - * Municipal
 - * Industrial
 - * Canal Seepage
 - * Cut to the Aquifer
 - * CAGRD Replenishment

Outflows

- * Natural
 - * Groundwater Outflow
 - * Riparian Demand
- * Artificial
 - * Sector Demands
 - * Agricultural
 - * Municipal
 - * Industrial
 - * Indian
 - * Remediated Groundwater
 - * Poor Quality Groundwater

Annual Calculation – Data Sources

Inflows

- * Natural
 - * Groundwater Inflow
 - * Streambed Recharge
 - * Mountain-front Recharge
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Outflows

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 - * Remediated Groundwater
 - * Poor Quality Groundwater

Items highlighted in blue are outputs of ADWR's regional groundwater models.

Items highlighted in gray are compiled from AMA Annual Reports.

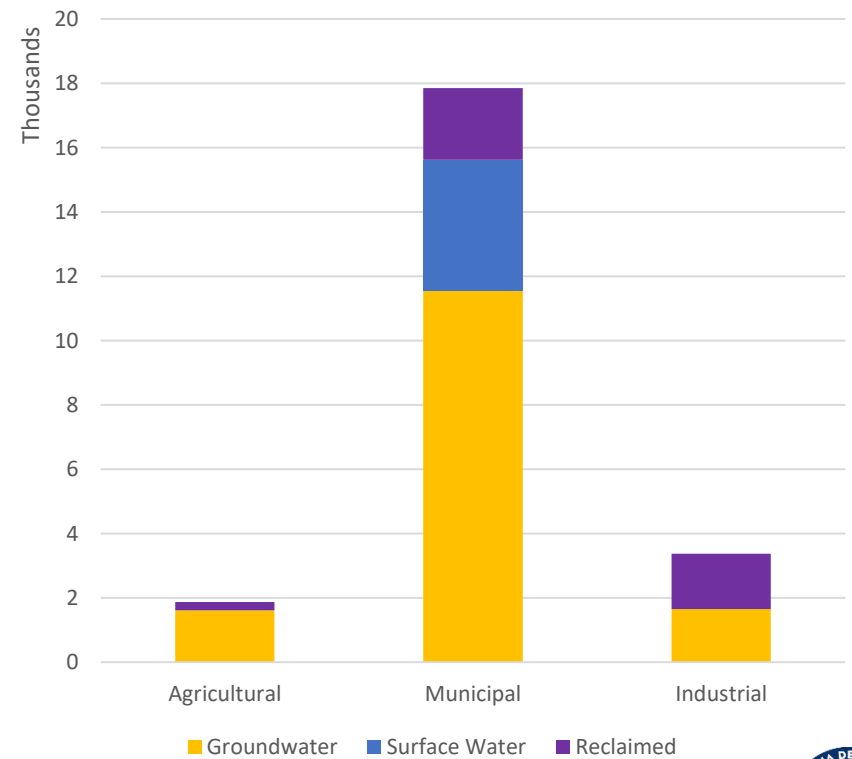
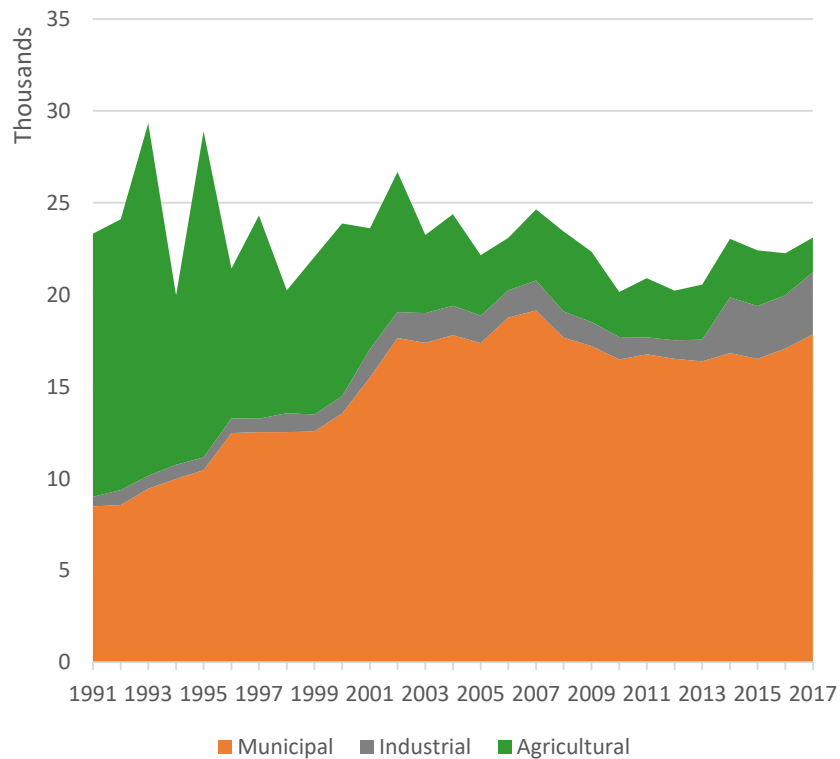


Safe-Yield by AMA



Prescott AMA

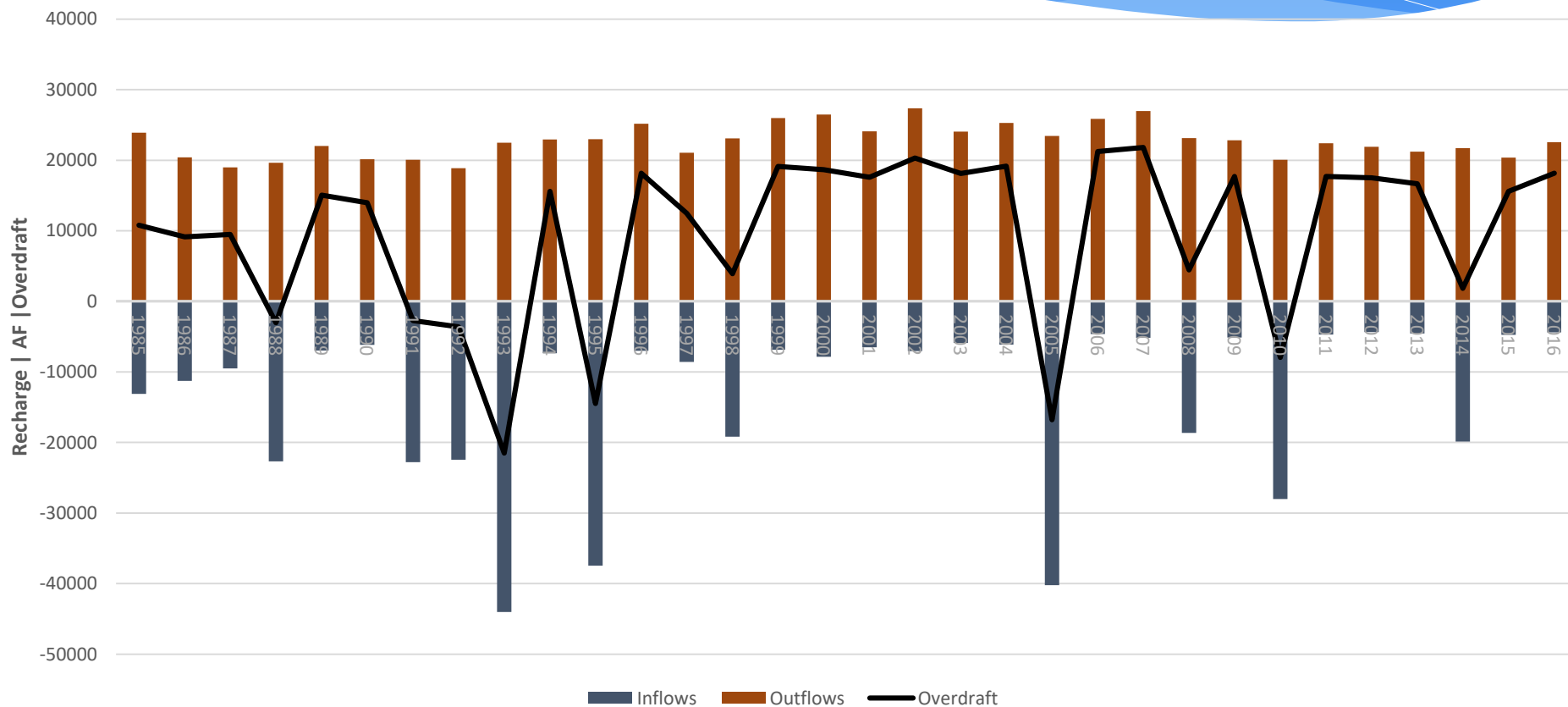
Water Demand & Supply





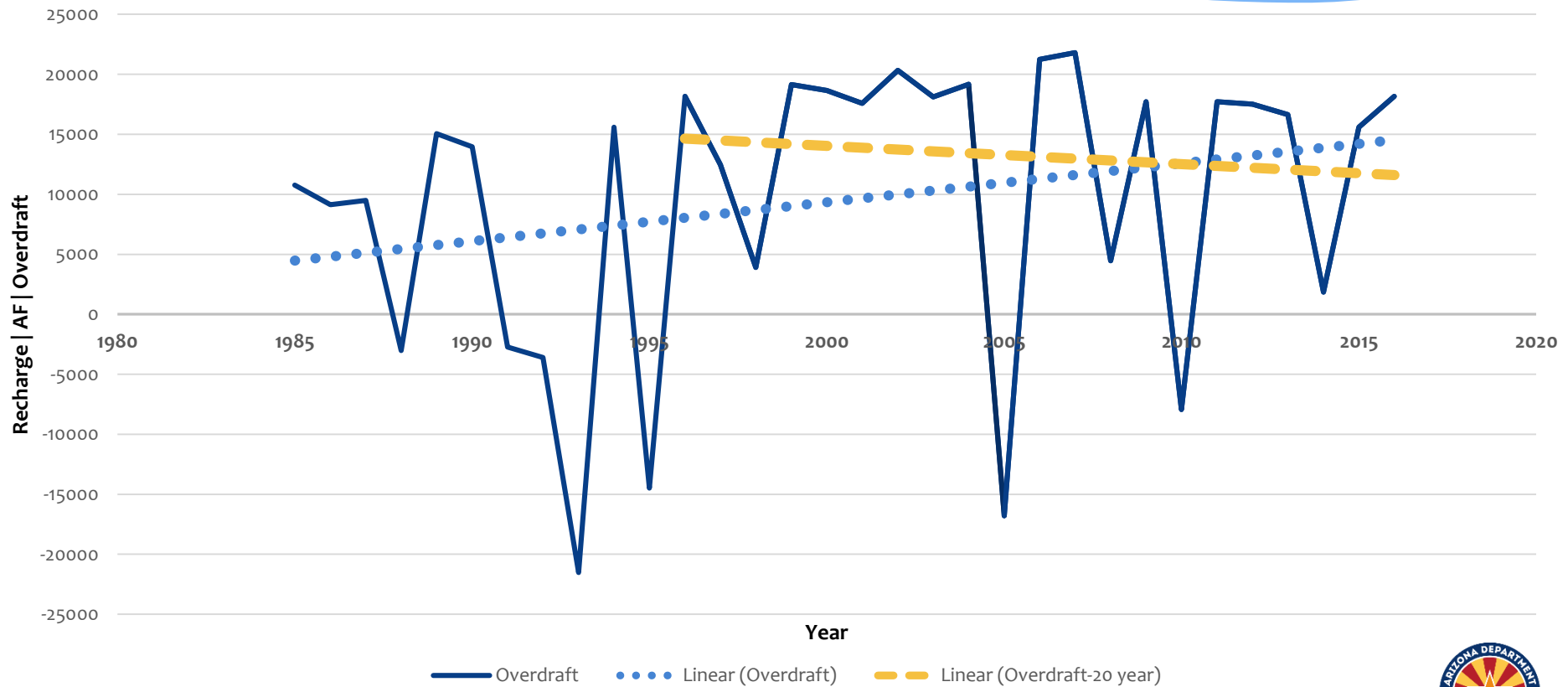
Prescott AMA

Annual Overdraft – Inflows & Outflows



Prescott AMA

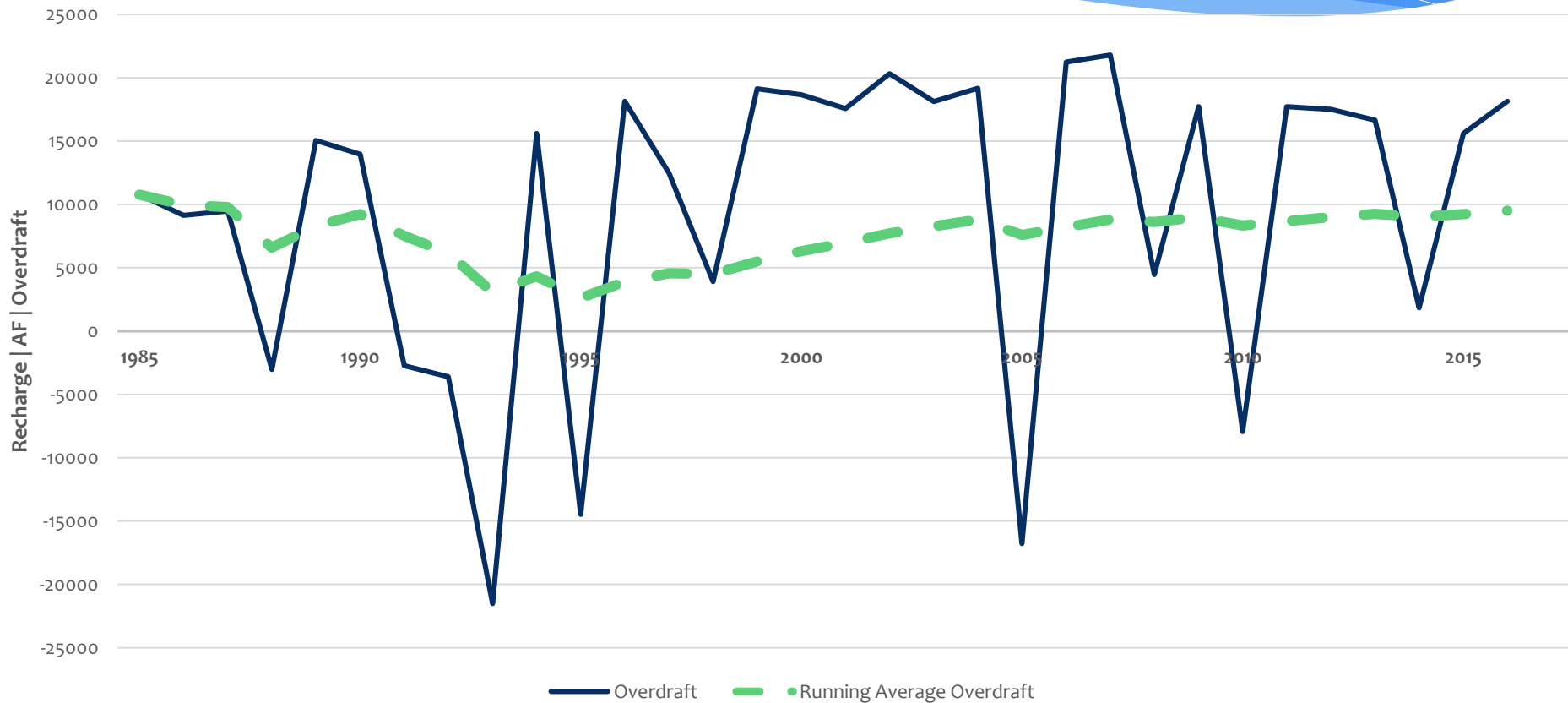
Annual Overdraft & Trendlines





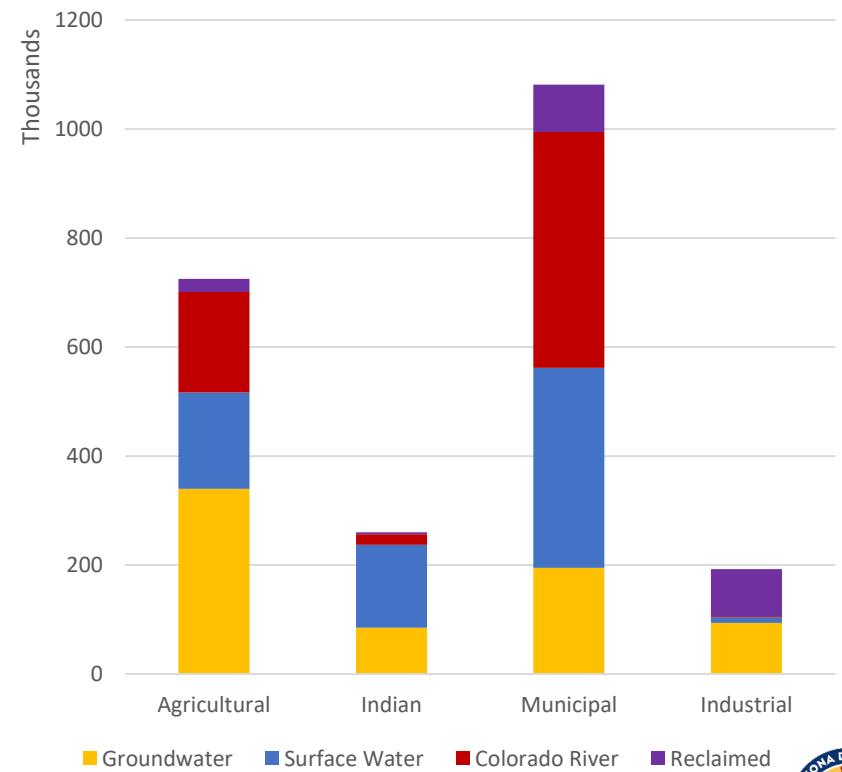
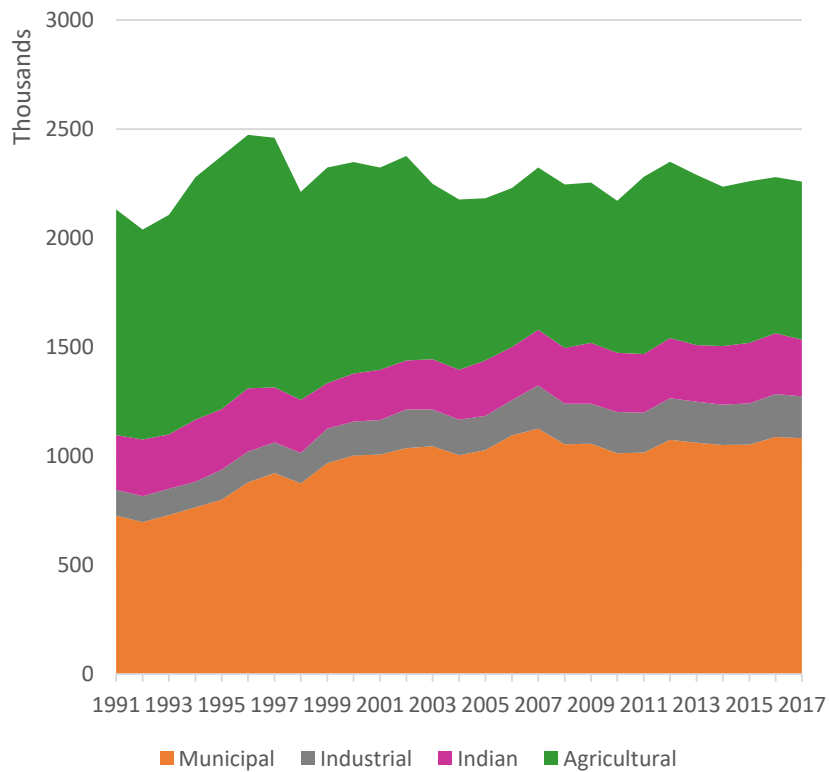
Prescott AMA

Annual Overdraft & Running Average



Phoenix AMA

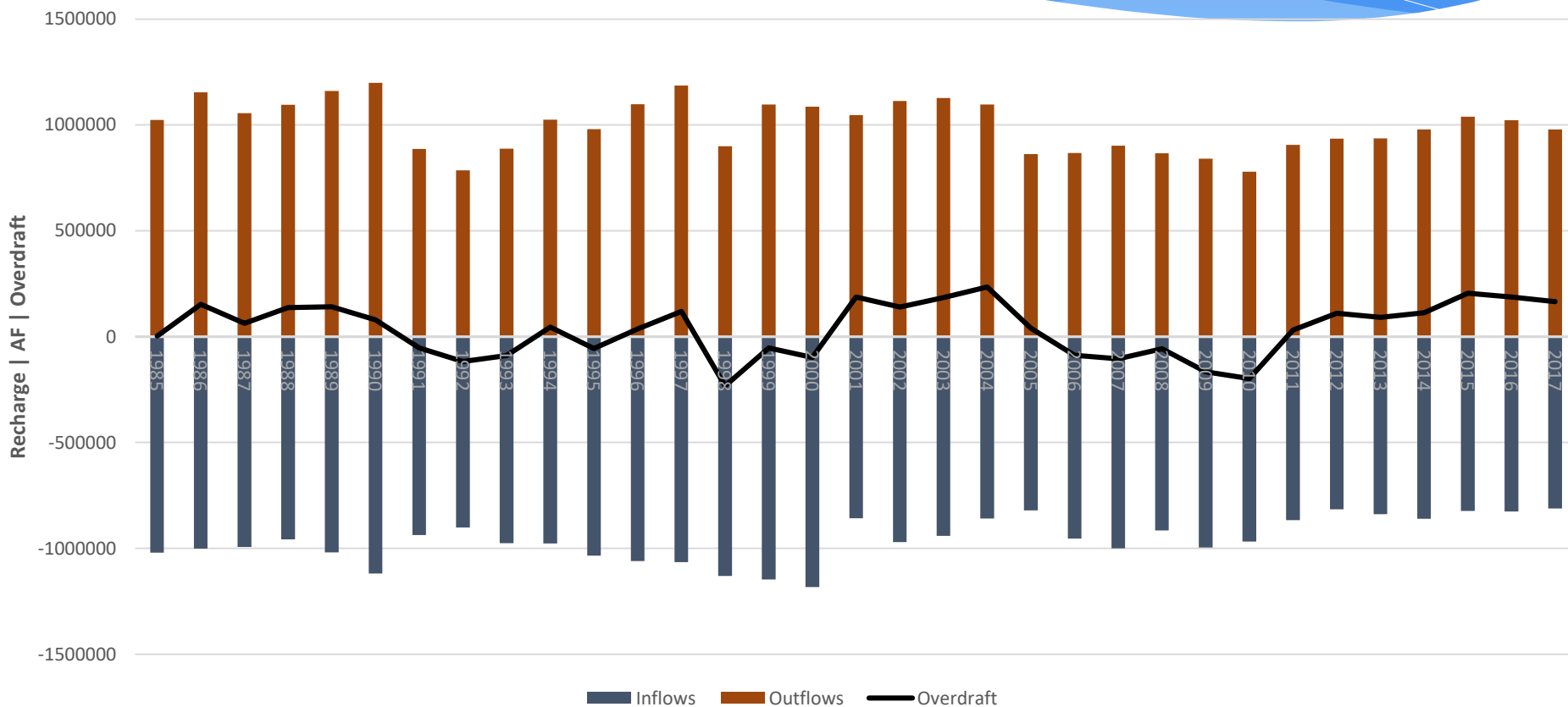
Water Demand & Supply





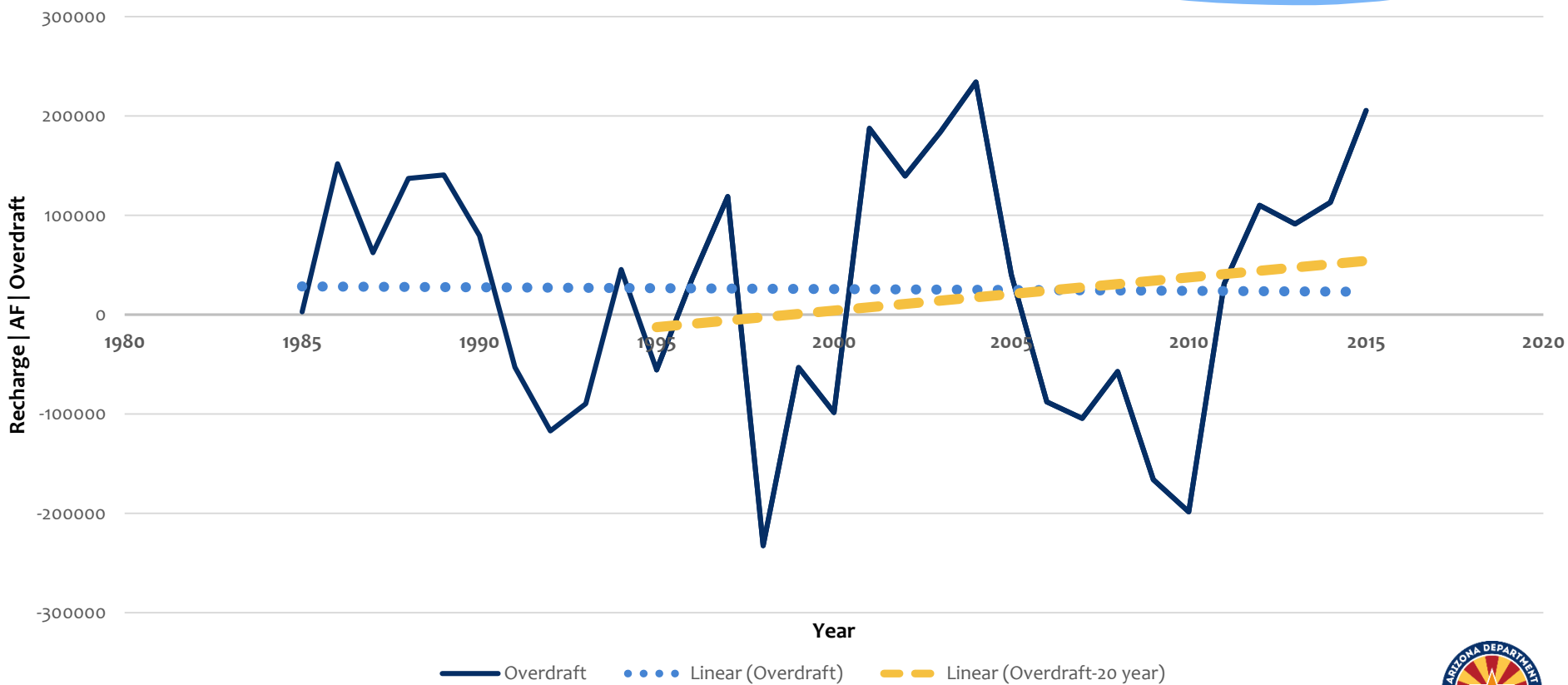
Phoenix AMA

Annual Overdraft – Inflows & Outflows



Phoenix AMA

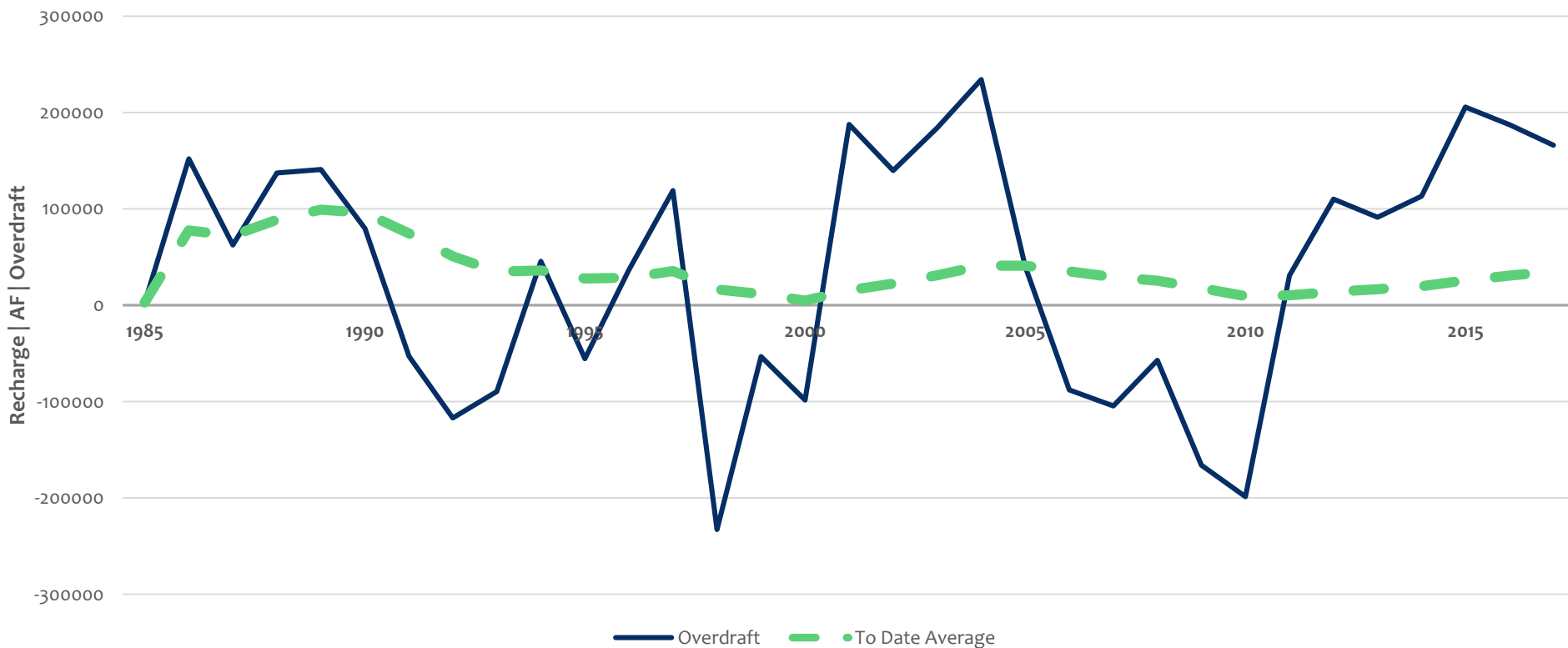
Annual Overdraft & Trendlines





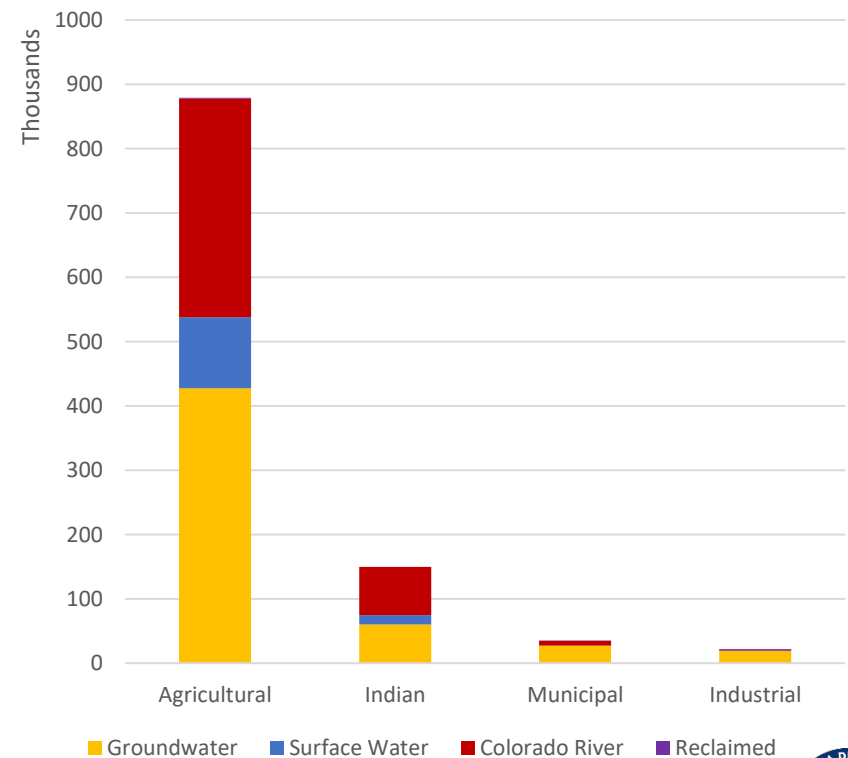
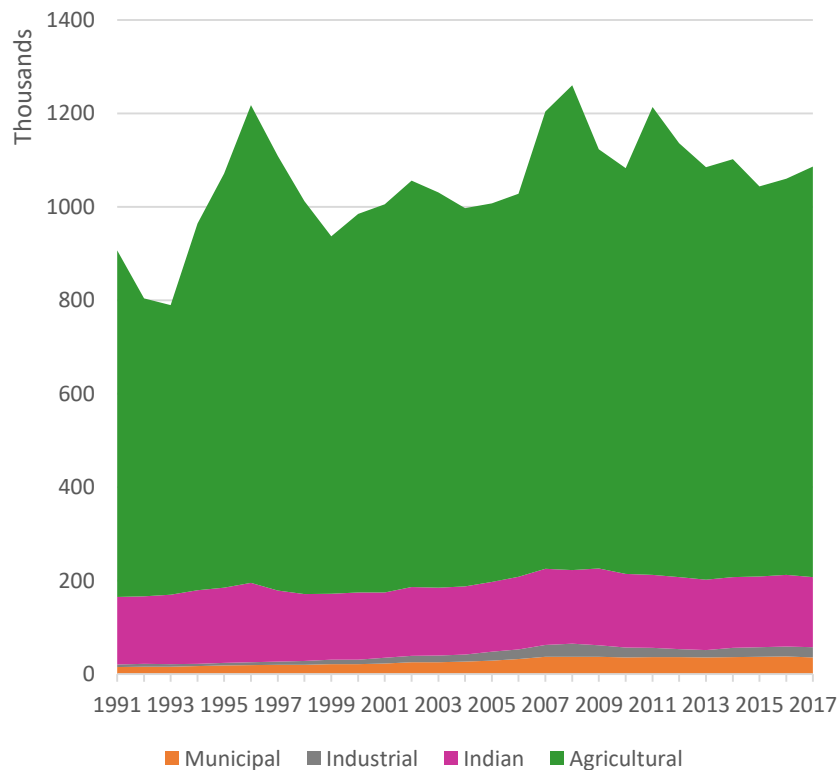
Phoenix AMA

Annual Overdraft & Running Average



Pinal AMA

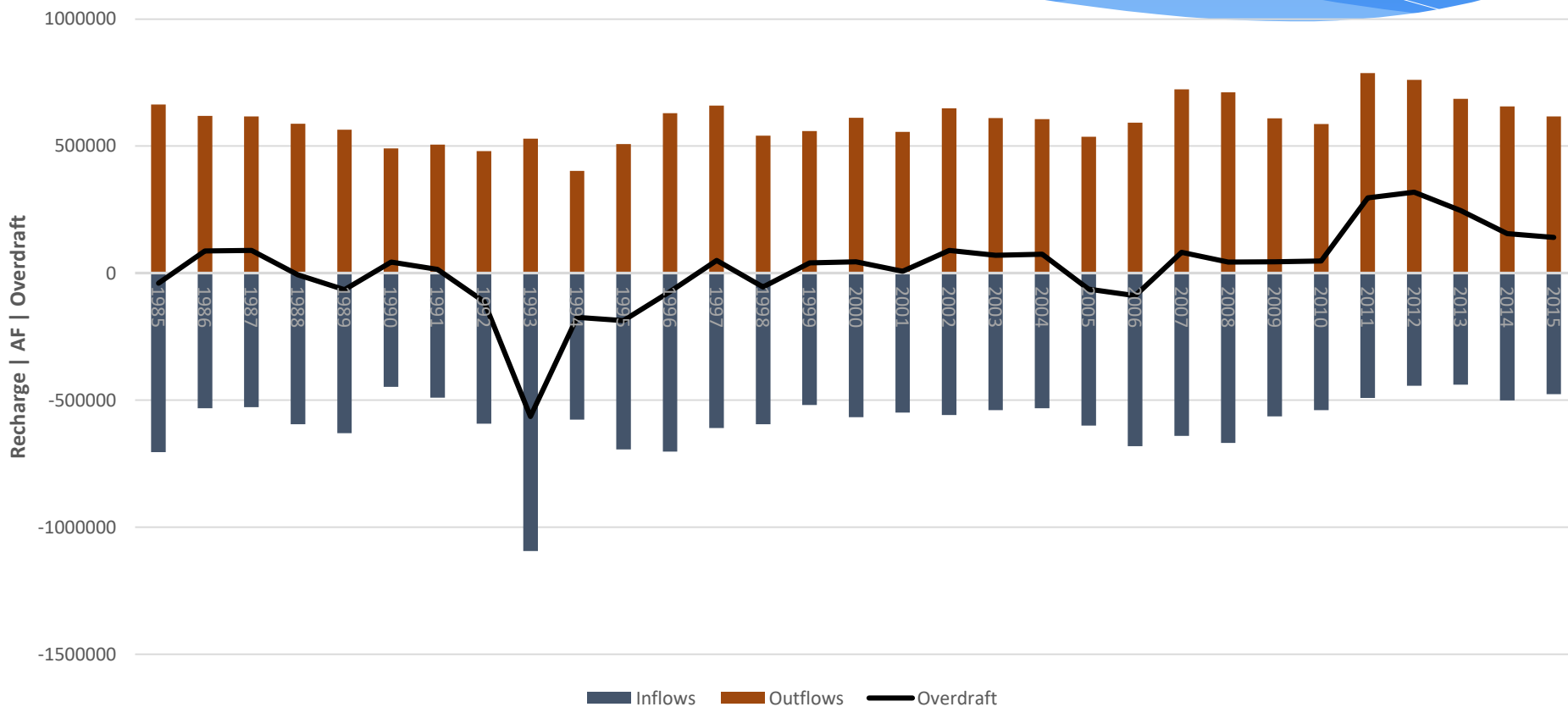
Water Supply & Demand





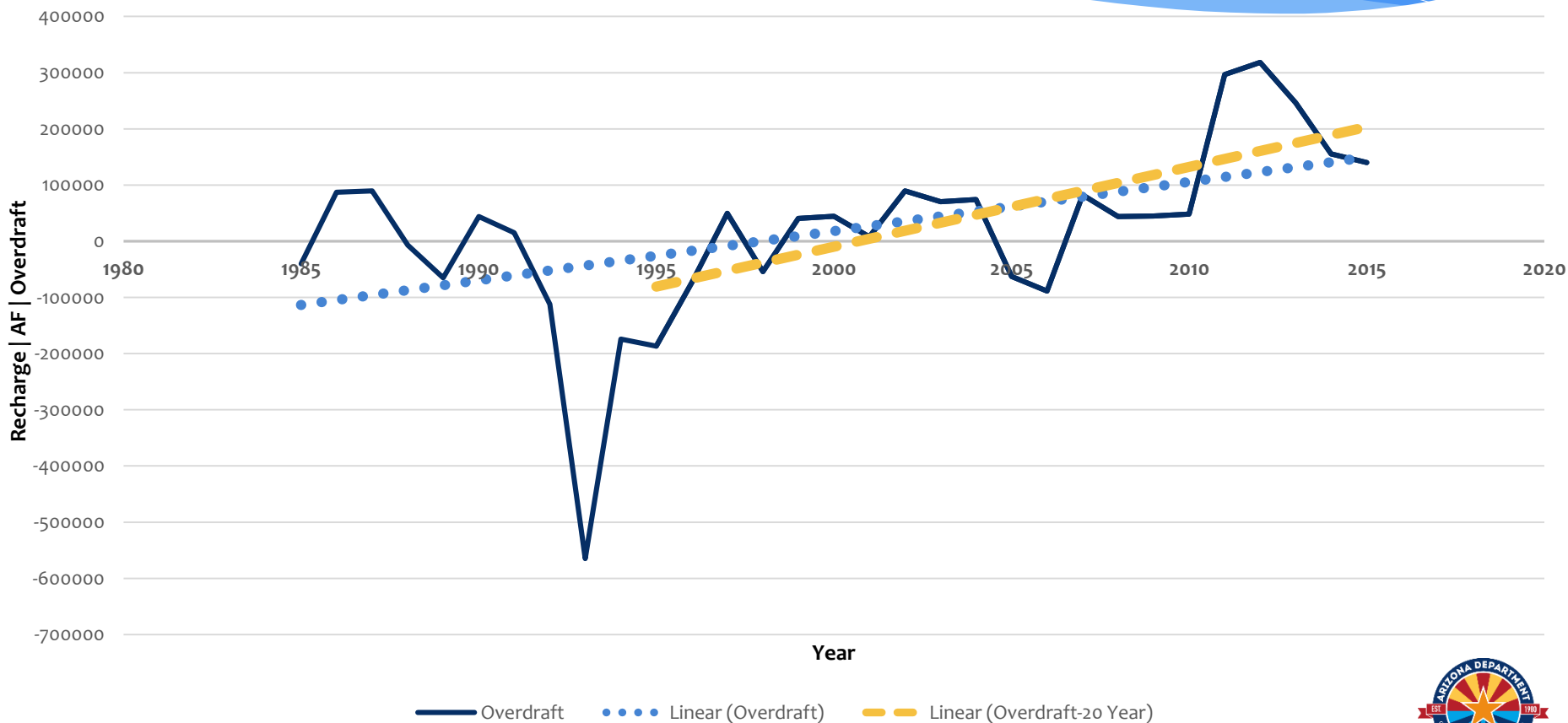
Pinal AMA

Annual Overdraft – Inflows & Outflows



Pinal AMA

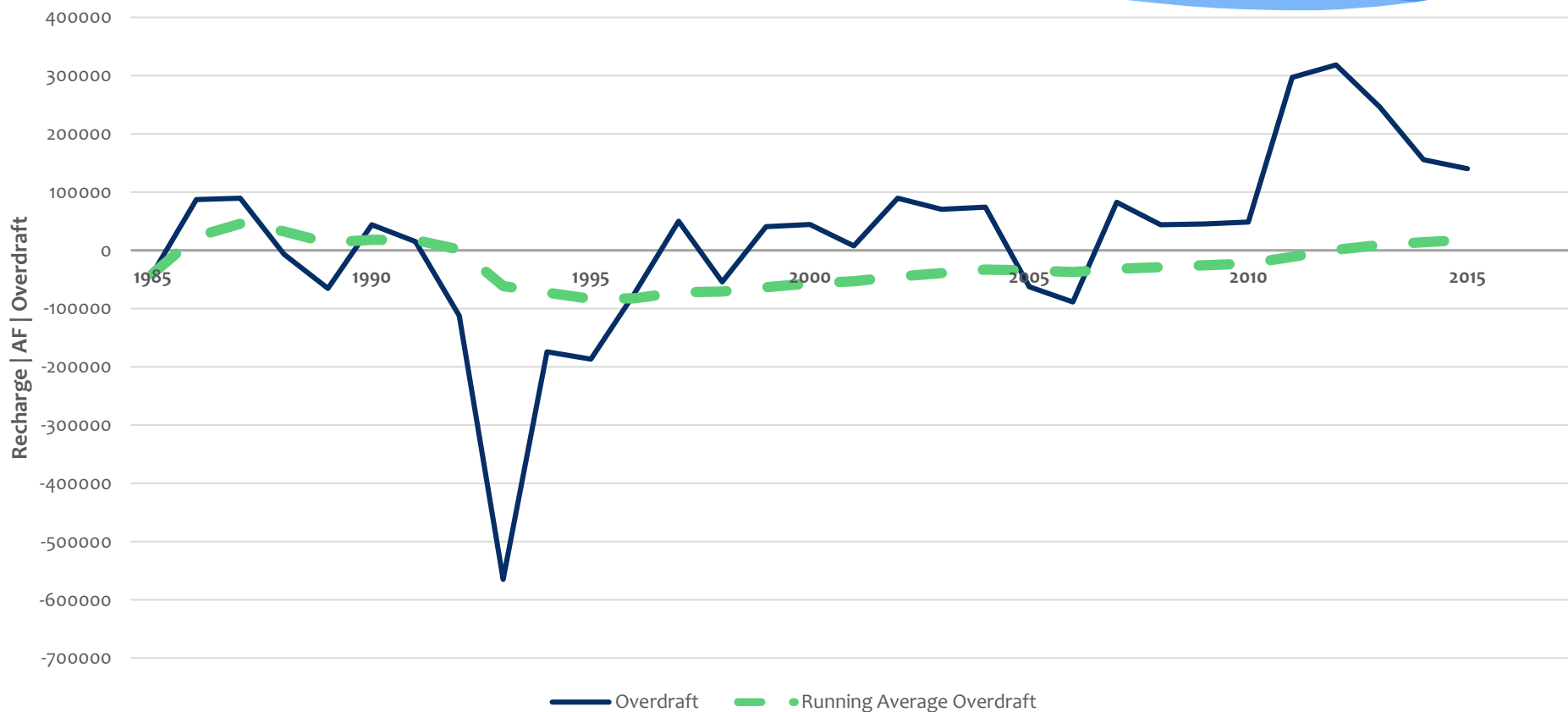
Annual Overdraft & Trendlines





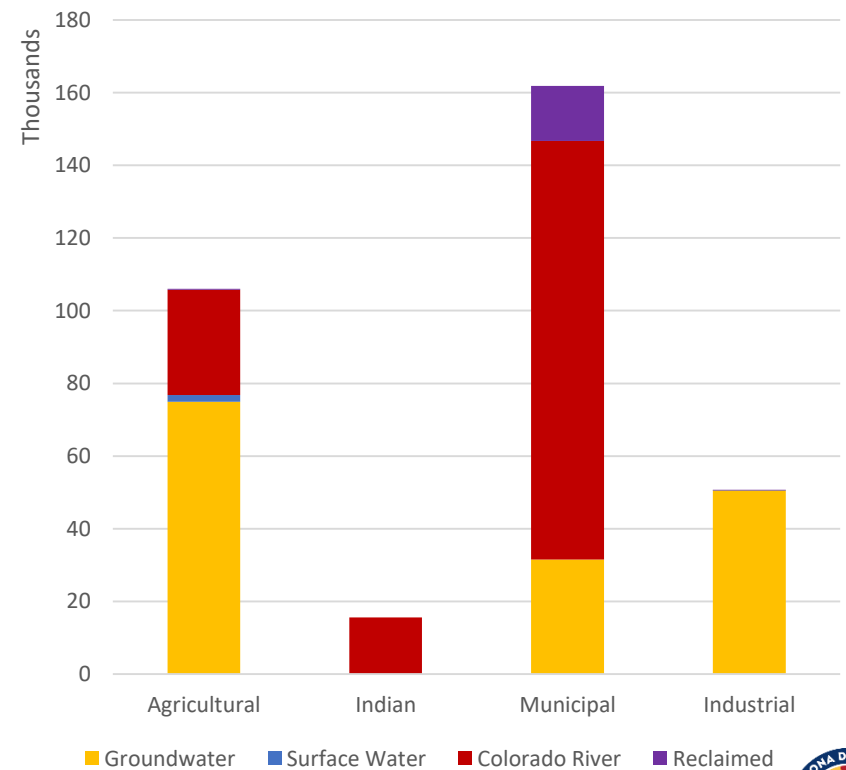
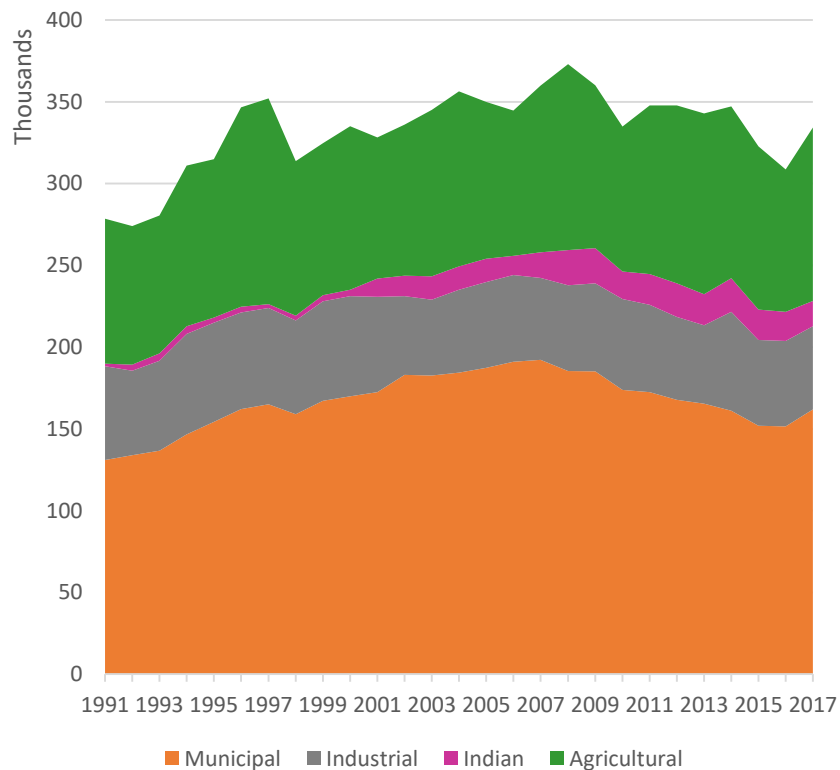
Pinal AMA

Annual Overdraft & Running Average



Tucson AMA

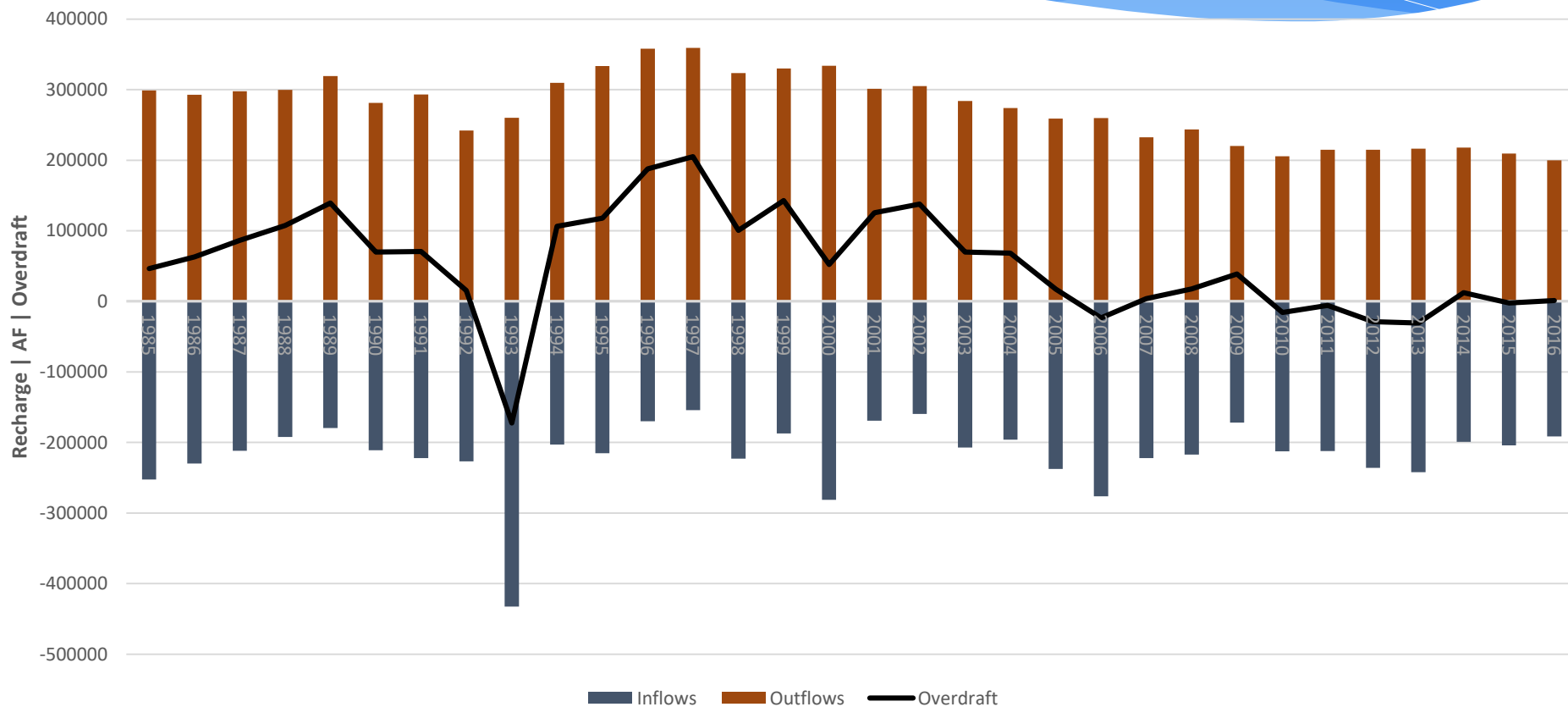
Water Demand & Supply





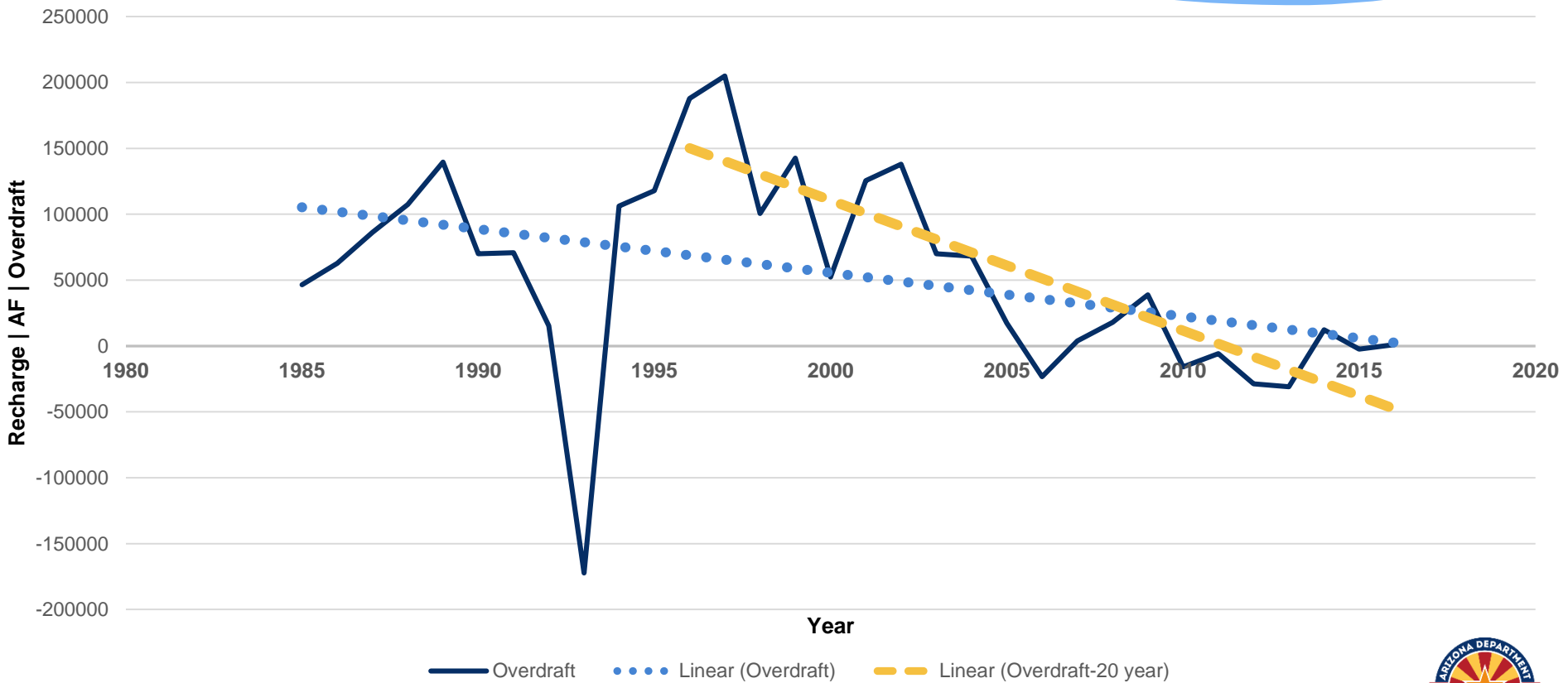
Tucson AMA

Annual Overdraft – Inflows & Outflows



Tucson AMA

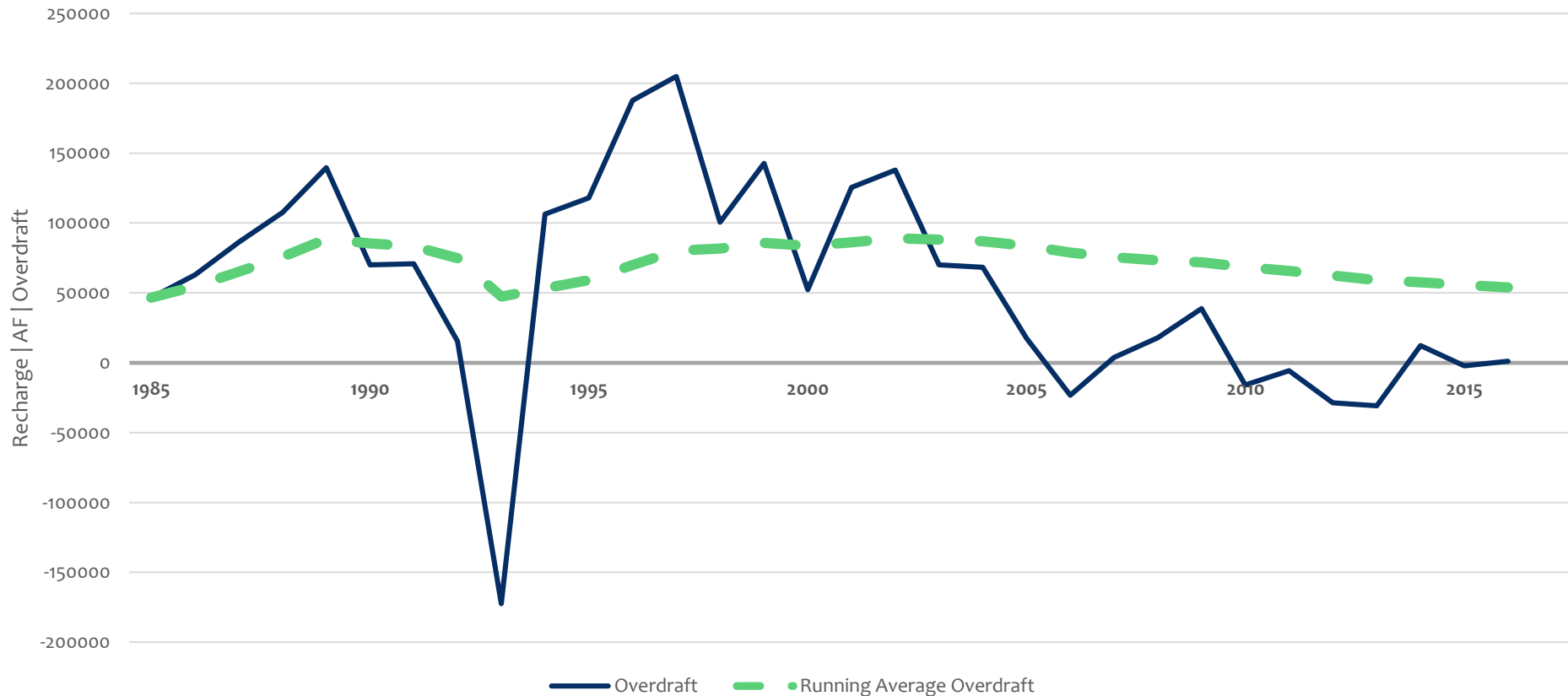
Annual Overdraft & Trendlines





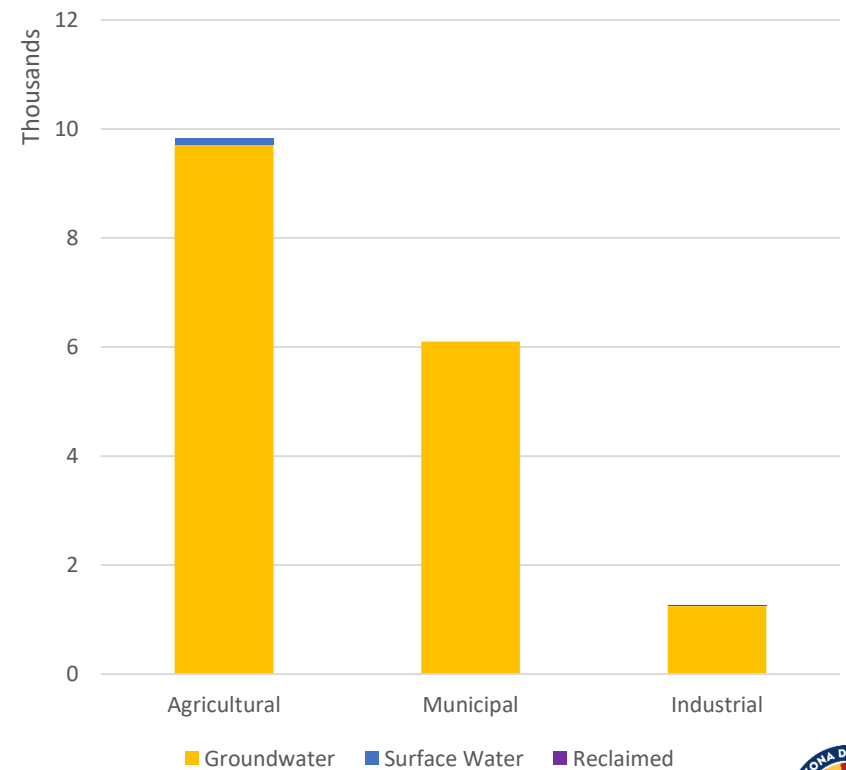
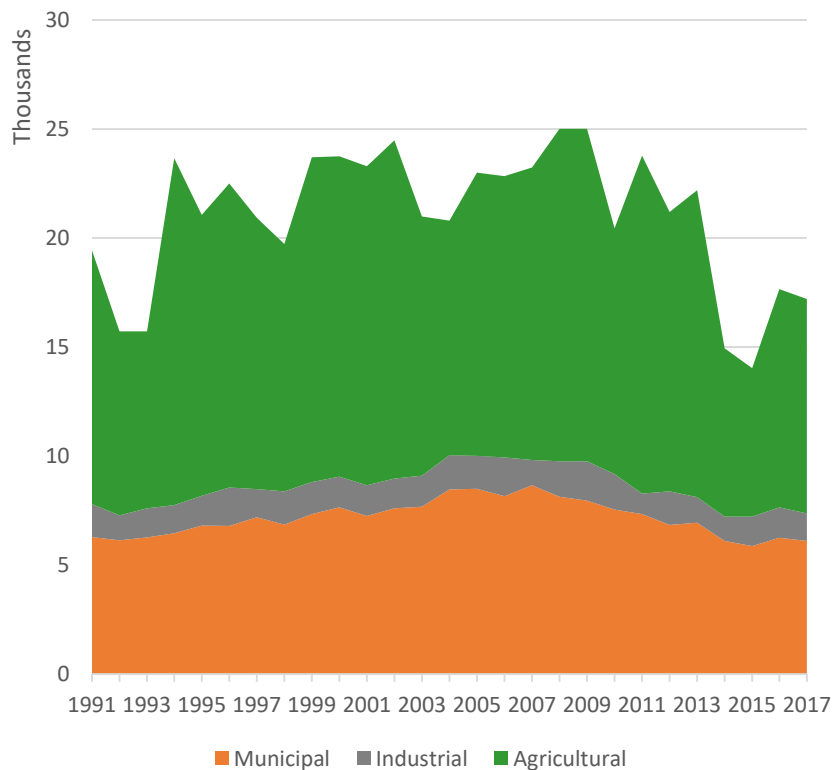
Tucson AMA

Annual Overdraft & Running Average



Santa Cruz AMA

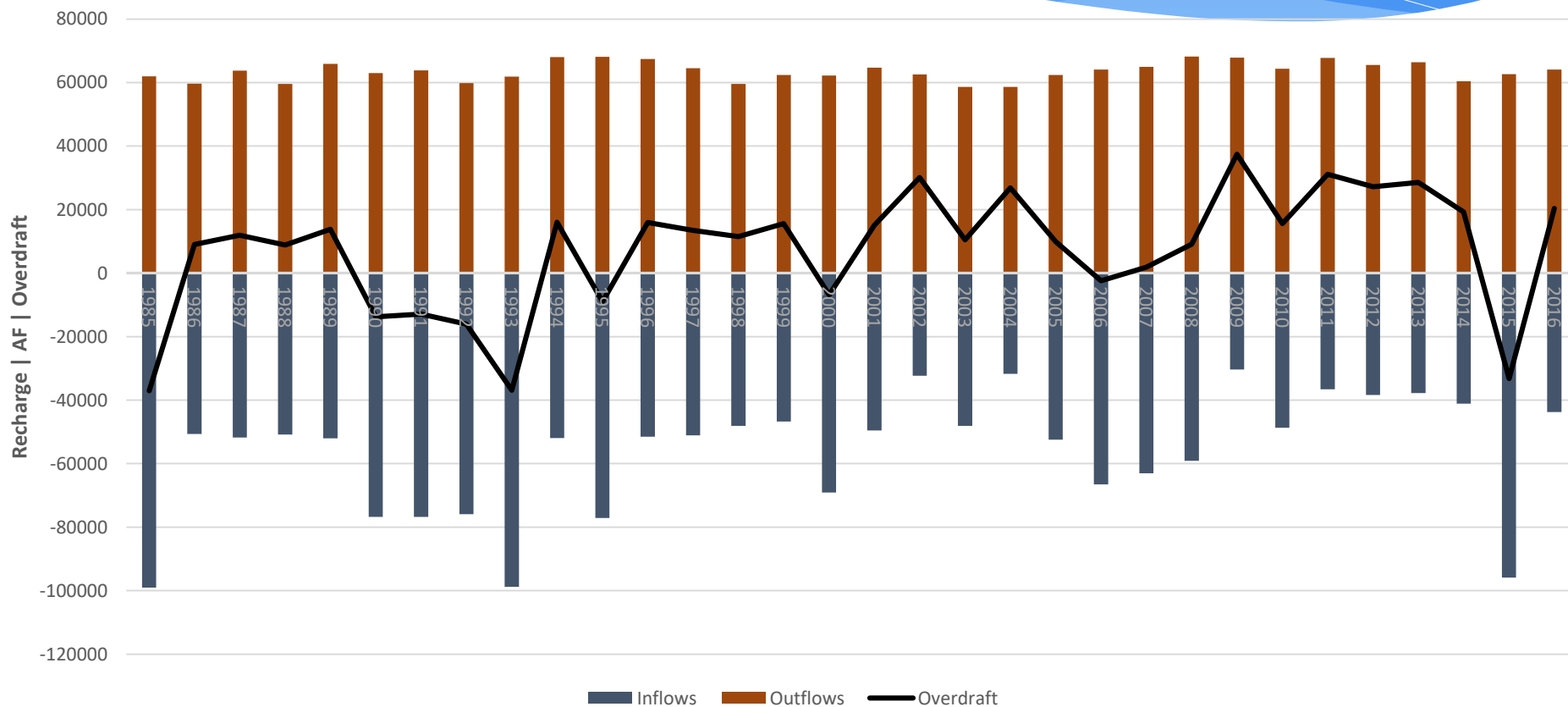
Water Demand & Supply





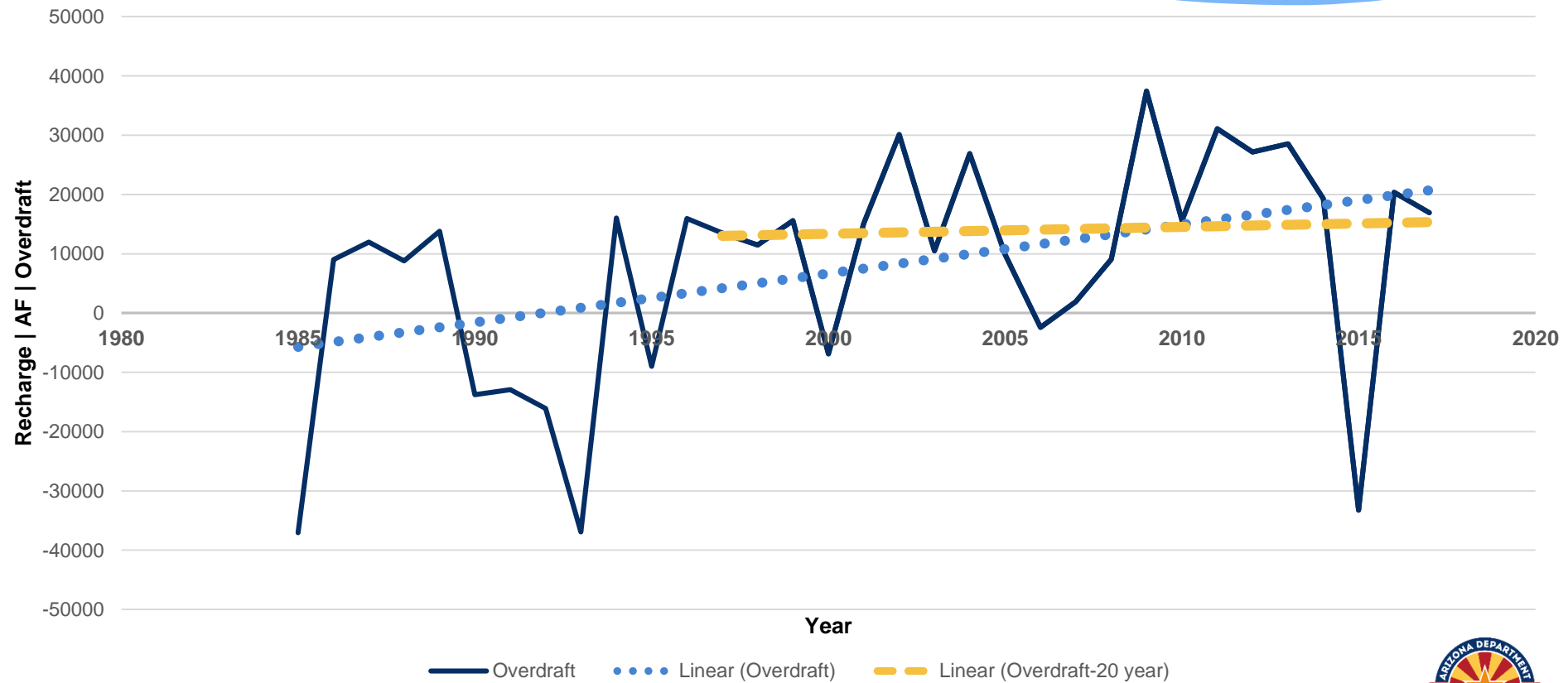
Santa Cruz AMA

Annual Overdraft – Inflows & Outflows



Santa Cruz AMA

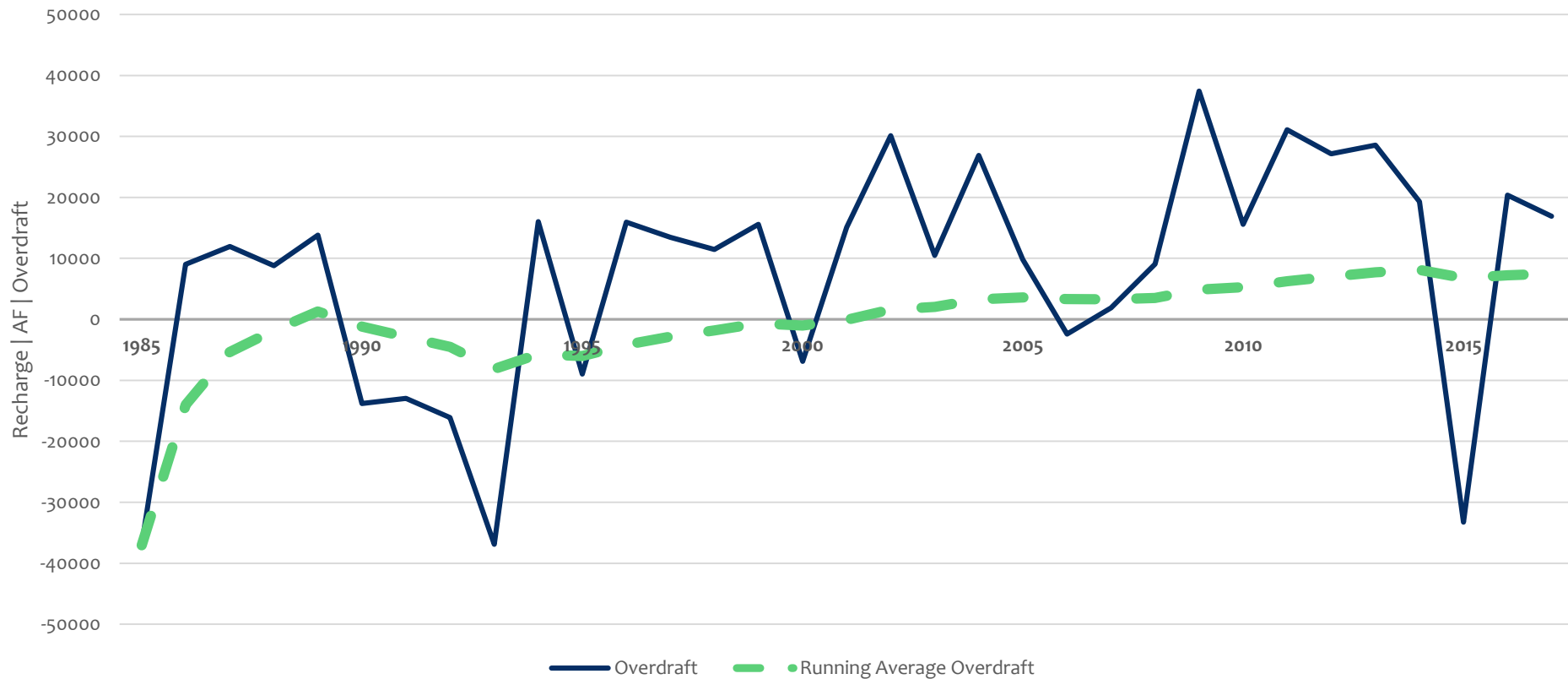
Annual Overdraft & Trendlines





Santa Cruz AMA

Annual Overdraft & Running Average



Challenges & Continuing Work



Challenges in Analyzing Safe-Yield

- * Ambiguous definition
 - * Components
 - * Which components to include
 - * How to calculate each component
 - * Differences between AMAs in how data for various components is generated
 - * Analyzing “Long-term balance”
- * Extreme year-to-year variability
- * Analyzing trends and identifying influences



MANAGEMENT PLANS WORK GROUP

A.R.S. § 45-563 (A)

“The director shall develop a management plan for each initial active management area for each of five management periods... and shall adopt the plans only after public hearings... The plans shall include a continuing mandatory conservation program... designed to achieve reductions in withdrawals of groundwater.”

ADWR-led stakeholder forum for the development of the 5th Management Plans

- * Goals:
 - * Assess existing conservation programs
 - * Update existing management strategies
 - * Develop new management strategies



MPWG Safe-Yield Technical Subgroup

Goals

- * Consensus on methodology and definitions
 - * Assessing each component
 - * Identifying a general approach for assessing long-term status
 - * Consistency across AMAs
- * Clear communication of status of each AMA

Meeting Information

- * Previous presentation and recordings available at new.azwater.gov/5MP
- * Next Meeting TBD



Conservation Progress Report

As a part of the 4MP, ADWR will periodically publish an analysis of each AMA's progress toward its goal.

- * Expand scope of report required under A.R.S. § 45-563.01 to include analysis of:
 - * Effectiveness of Conservation Programs in all 3 sectors
 - * Progress toward the goal in each of the 5 AMAs
- * Transparency
 - * Communicating success or need for improvement
 - * Tracking and ensuring progress of each AMA toward its goal
 - * Sharing underlying data and methodology



Data Availability

- * Reported data is compiled and updated on an annual basis.
- * Data from ADWR's models lags behind the reported data.
- * Data is published in spreadsheet and dashboard form at <https://new.azwater.gov/ama/ama-data>
 - * Source data from the dashboard can also be downloaded from this site.



Questions?

Natalie Mast

nlmast@azwater.gov

For questions about meetings or to submit comments:

managementplans@azwater.gov

Management Plans Work Group:

new.azwater.gov/5MP



AMA Management Plans Update



GWAICC Meeting
December 3, 2019

Natalie Mast
Program Manager – Management Plans

Management Plans

A.R.S. § 45-563 (A)

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Update on Options from September GWAICC Meeting

Option A

ADWR Recommendation

- * Opportunity to incorporate additional input on ADWR's recommendations for the remaining 4MPs
 - * PhxAMA 4MP Stakeholder Meeting
 - Held on October 16, 2019
 - * Informal comment period closed November 8, 2019

Option B

- * Adopt Conservation Programs substantially similar to those in the 3rd Management Plans
 - * Including some technical updates

RUSSELL BOWERS
SPEAKER OF THE HOUSE

DISTRICT 25



1700 WEST WASHINGTON, SUITE 14
PHOENIX, ARIZONA 85007-2844
CAPITOL PHONE: (602) 929-3128
TOLL FREE: 1-800-352-8404
rbowers@azleg.gov

Arizona House of Representatives
Phoenix, Arizona 85007

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OFFICE OF THE DIRECTOR

November 4, 2019

Arizona Department of Water Resources
Thomas Buschatzke, Director
1110 W. Washington St., Suite 310
Phoenix, AZ. 85007

Dear Director Buschatzke,

I support the 4.75 acre-feet budget and believe that it is beneficial to meeting the goals of water management in Arizona while allowing golf facilities to remain competitive with other golf destinations in the United States including Monterey, CA., Myrtle Beach, S.C. and Palm Springs, CA.

As you are aware, the Arizona golf industry is a major driver of tourism to the state. The industry has a total economic contribution of \$3.9 billion and supports 41,700 jobs throughout the state. The over 320 facilities support an estimated \$72 million in state and local taxes.



Estimated Timeline

4MP

Phoenix
AMA
Adoption

Pinal
AMA
Adoption

Santa
Cruz
AMA
Adoption

2019

2021

202_?

202_?

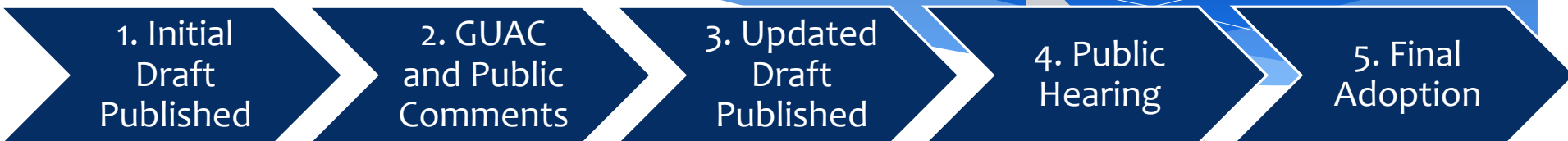
MPWG

Drafting
Plans

Adopting
Plans

5MP

Estimated 4MP Adoption Timeline



Phoenix AMA

- **Final Adoption:**
Summer 2020
- **Programs Effective:**
January 2023

Pinal AMA

- **Final Adoption:**
Winter 2020
- **Programs Effective:**
January 2023

Santa Cruz AMA

- **Final Adoption:**
Summer 2021
- **Programs Effective:**
January 2024

Conservation Program Requirements go into effect at least 2 years after a plan is adopted. ADWR shifts the actual effective date past the 2 year mark to line up with Reporting Years.

Estimated Timeline

4MP

Phoenix
AMA
Adoption

Pinal
AMA
Adoption

Santa
Cruz
AMA
Adoption

2019

2021

2022

2023

MPWG

Drafting
Plans

Adopting
Plans

5MP

MANAGEMENT PLANS WORK GROUP

A.R.S. § 45-563 (A)

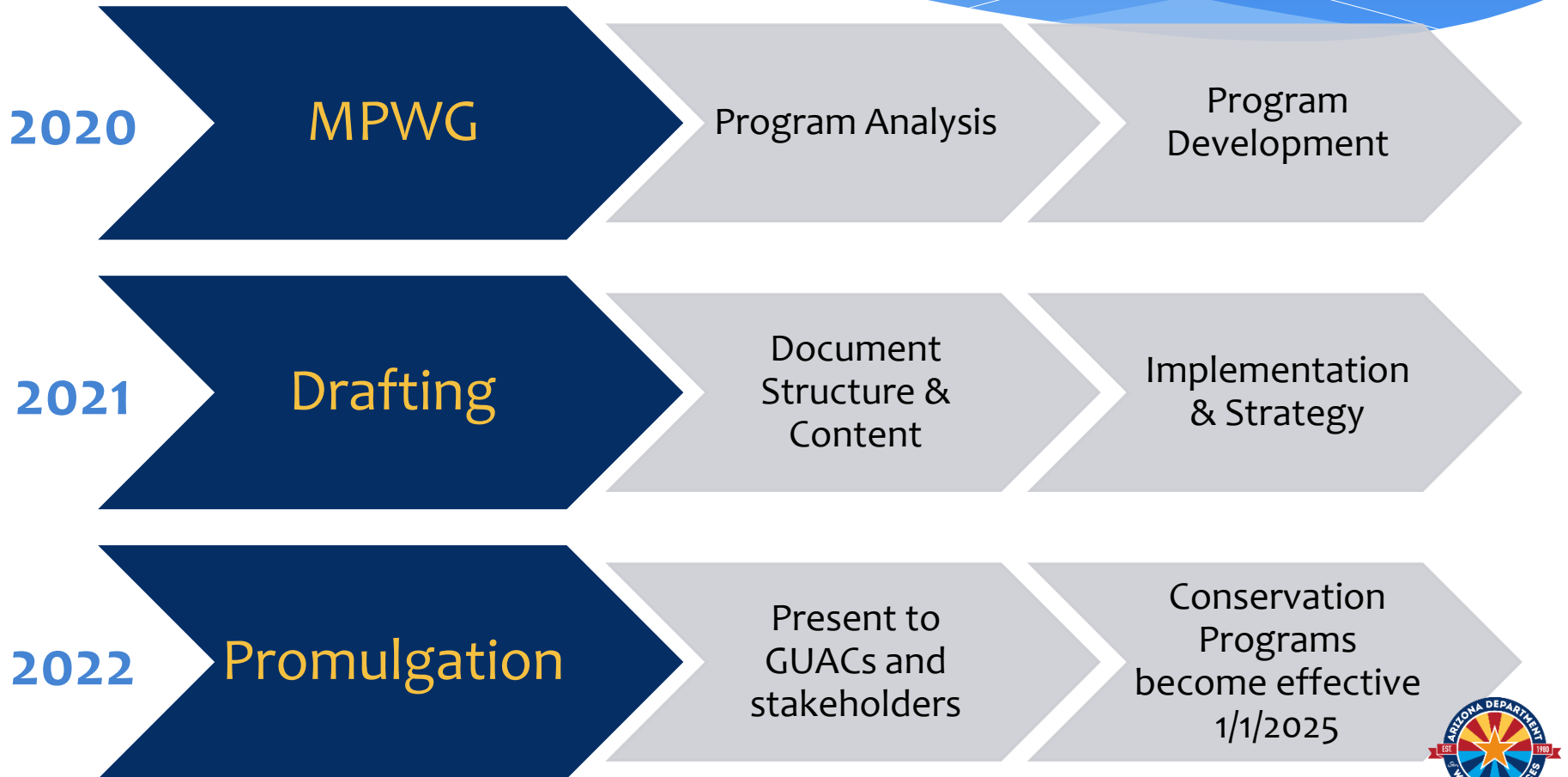
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 - * Update existing management strategies
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Estimated 5MP Timeline



MPWG Subgroups

{ All meeting info is available at new.azwater.gov/5MP }

Work Group

MPWG

 3/19/2020

Subgroup

Ag

 3/3/2020

Muni

 1/7/2020

Industrial

Safe-Yield
Technical

 2/4/2020

Breakout

Turf

 1/23/2020

Questions?

Natalie Mast

nlmast@azwater.gov

For questions about meetings or to submit comments:

managementplans@azwater.gov

Management Plans Work Group:

new.azwater.gov/5MP



Update to the Governor's Water Council on the Pinal AMA Assured Water Supply (AWS) Physical Availability Issues

Tom Buschatzke, Director
Arizona Department of Water Resources
December 3, 2019



Presentation Overview

2019 Pinal Model Background and Results

ADWR Pinal Assured Water Supply Solutions Guiding Principles

Pinal Active Management Area Water Supply Stakeholder Group

Next Steps



Physical Availability of Groundwater in the Pinal Active Management Area

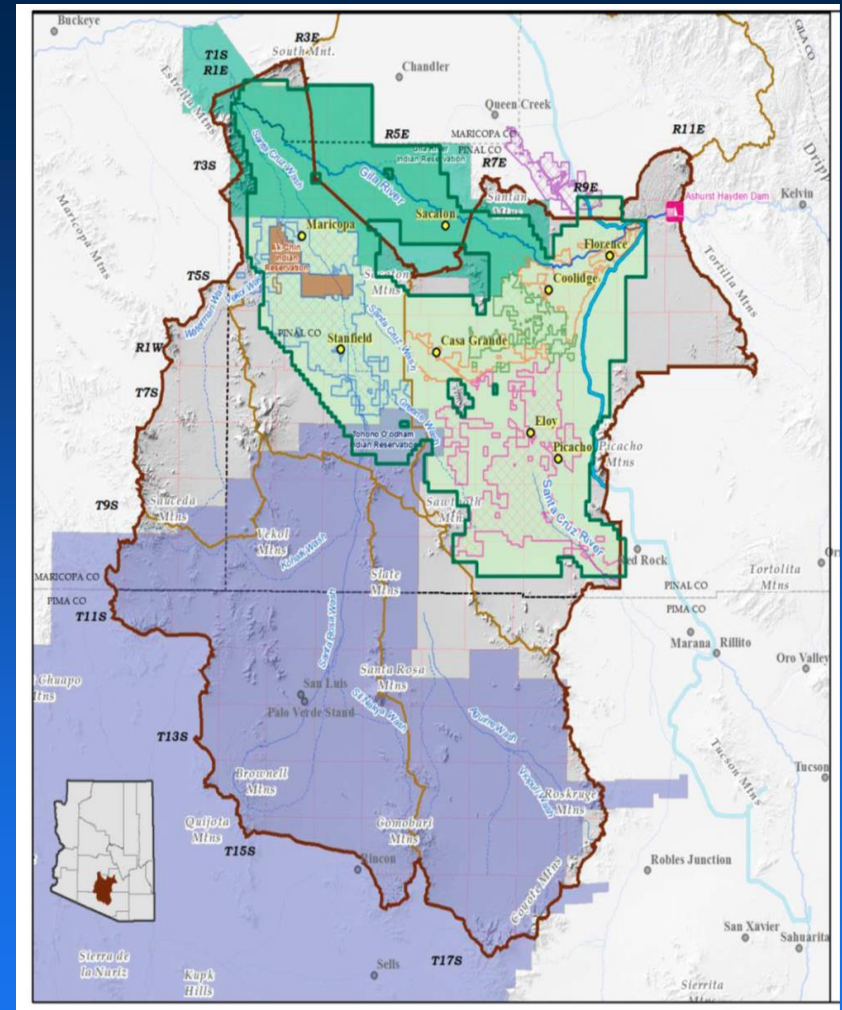
Looking out 100 years, there is insufficient groundwater in the Pinal Active Management Area to support all existing uses and issued assured water supply determinations.

ADWR will engage in a process led by local stakeholders to identify and vet water supply options that could enable continued development while maintaining strong consumer protection.



History of Pinal AMA Groundwater Modeling

- Prior to 2014 - AWS applicants submitted analytical and local numeric models
- 2014 - ADWR released regional numerical groundwater model
 - Peer reviewed
- 2019 - Updated model
 - Includes 100-year AWS projection and structural modifications



2019 Pinal Model Results

2019 Pinal Model 100-Year Cumulative Projections	100-Year Projection 2016 - 2115
Total Demand (AF)	80,648,525
Simulated Demand (AF)	72,560,695
Unmet Demand (AF) (Total - Simulated)	8,087,830
AWS Unmet Demand (AF)	1,969,950
Agricultural Unmet Demand (AF)	5,059,056
Existing M&I Uses Unmet Demand (AF)	782,112
LTSC Removal Unmet Demand (AF)	276,712



AWS Model Results Comparison 2017 & 2019

Pinal Groundwater Model 100-Year Projections with AAWS Demands	2017 100-Year Projection 2015 - 2114	2019 100-Year Projection 2016 - 2115
Total Demand (AF)	94,275,363	80,648,525
Simulated Demand	85,668,446	72,560,695
Unmet Demand (AF) (Total - Simulated)	8,606,917	8,087,830
Percent of Model Total Demand that is Unmet	9.13%	10.03%
Unmet M&I/LTSC Demand (AF) (Unmet Demand – Unmet Agriculture Demand)	4,288,886	3,028,774
Percent Unmet M&I or LTSC Demand	4.55%	3.76%



November 1st ADWR Stakeholder Meeting

- Provided a deeper understanding of the 2019 Model, and, in the process, engaged with the pending applicants and stakeholders.
- Addressed questions regarding the science behind the model, as well as applications of the Model's results.
- Described next steps.
- Answered questions and concerns regarding the Model results, recognizing that some of the issues raised may need further discussion.



The State's Guiding Principles for Future Solutions

1. We must continue the State's commitment to upholding the consumer protection and water sustainability objectives of the Assured Water Supply Program.
2. The stakeholder process should be community driven. The State's role will be to provide assistance and comment on proposals.



Pinal AMA Water Supply Stakeholder Group

Established by the House Ad Hoc Committee on Groundwater in Pinal County on November 12, 2019.

- Pinal County Supervisor Steve Miller will chair the committee. William Garfield, Arizona Water, and Jake Lenderking, Global Water Resources will be vice-chairs.
- Initial 29 members include cities, utilities, agricultural interest groups, development interest groups, local organizations, tribal communities, and the Department of Water Resources.

ADWR will provide technical support and assist in vetting options that could enable continued development while maintaining strong consumer protections.



Pinal AMA Water Supply Stakeholder Group Anticipated Schedule

Full stakeholder group will meet monthly, workgroups will meet more frequently.

- First Pinal Stakeholder Group Meeting
December 9, 2019
10:00 a.m. – noon
Ironwood Room, Pinal County Complex, Florence
- Second Pinal Stakeholder Group Meeting (TENTATIVE)
January 6, 2020
Time and location TBD

Conclusion of work is expected by August or Sept. 2020.



Additional Information

- * The Pinal AMA Water Supply Stakeholder Group meeting notices and materials will be posted on the ADWR website
- * 2019 Pinal Model Report is available on ADWR's website



VI. Closing Remarks and next meetings

March 13, 2020

10:00 a.m. – 12:00 p.m.

ADWR Room 3175



Contact Information

Carol Ward

cward@azwater.gov

Cyndi Ruehl

cruehl@azwater.gov

ADWR /GWAICC web page:
www.azwater.gov/gwaicc

